

## NOTES ON BEES, WITH DESCRIPTIONS OF NEW SPECIES.

BY CHARLES ROBERTSON.

**Sphecodes stygius** ♀.—Black, shining, clothed with thin white pubescence, slightly inclining to fuscous on the vertex and disc of mesothorax: mandibles not dentate, honey-yellow; flagellum testaceous beneath; vertex not tuberculate; disc of mesothorax with coarse, moderately close punctures, rugose anteriorly, metanotum with semi-circular enclosure having coarse reticulations; tegulae testaceous exteriorly; wings hyaline, slightly dusky towards the tip, nervures and stigma fuscous; apical joints of tarsi dull testaceous; abdomen shining and impunctate at base, becoming more opaque and more punctate on apical segments; first and second segments red, with a fuscous patch on the disc of each, remaining segments black, more reddish laterally, and with broad, dull testaceous, apical margins. Length 5 mm.

♂.—Resembles the ♀; the antennae darker, not moniliform, third and fourth joints subequal, enclosure of metanotum a little less distinct, tarsi a little paler; abdomen with sides of first, second, and sometimes third segments red. Length 5 mm.

*Hab.*—Illinois; one female, seven male specimens. This species closely resembles *S. mandibularis* Cr., but may be distinguished by its larger size, simple mandibles, more closely punctured mesothorax, darker colored abdomen, and darker tarsi.

**Halictus areatus** ♀.—This species closely resembles *H. similis* Sm., and probably has been confused with that species. It is distinguished by its form a little more robust, its elytral a little less produced; metathorax broader, shorter, rounded posteriorly, instead of being sharply truncate; metanotum more irregularly reticulated; hind spurs with the teeth less obvious; abdomen not so black, a little more punctured, the apical margin more broadly testaceous. Length 7-9 mm.

*Hab.*—Illinois; thirty-five specimens; I think this is the insect identified as *H. similis* by Cresson in his "Hymenoptera Texana." *H. similis* was so named from its resemblance to *H. leucozonius*, a species with sharply truncate metathorax.

**Halictus zonulus** Sm.

Prof. J. Pérez, of Bordeaux, France, has sent me specimens of this species from Europe, with specimens received by him from Canada. He regards them as identical. *H. discus* Sm. is probably this species. The American Entomological Society's collection contains numerous specimens from New Hampshire.

**Halictus parallelus** Say (= *H. occidentalis* Cr.).

Say describes his species as having the "wings and feet ferruginous," which is a sufficient characterization of it. Smith, who evidently never saw Say's species, supposed *H. lerouxii* Lep. to be the

same. It is common in Illinois, and there can be no question about its being the insect found by Say in Indiana.

**Halictus lerouxii** Lep. (= *H. parallelus* Sm. nec Say.)

**Halictus coeruleus** ♀.—Head, thorax and abdomen above of a uniform brilliant blue, smooth and shining, clothed with thin pale pubescence; face broad, clypeus slightly produced, mandibles rufous before apex, antennæ dull testaceous beneath towards tip: mesonotum and scutellum sparsely and finely punctured; metathorax retracted, truncate, the disc with longitudinal raised lines. Wings hyaline, nervures and stigma fuscous, tegulæ piceous. Legs fuscous or dull testaceous, hind spur with three or four teeth. Abdomen shining, almost impunctate, with very thin white pubescence. Length 6 mm.

♂.—Resembles the female: face rounded, clypeus abruptly, but not strongly produced; antennæ moderately long, dull testaceous beneath; the tarsi, and sometimes the knees, pale testaceous. Length 5—6 mm.

*Hab.*—Illinois; four male and five female specimens. It is easily separated from the rest of our *Halictus* by its blue color,

**Augochlora similis** ♀.—Green, the thorax and abdomen more golden, clothed above with yellowish pubescence; labrum, middle of mandibles, flagellum, nervures, stigma and tegulæ, base and apex of tibiæ and tarsi, and narrow edge of abdominal segments testaceous; mesothorax evenly punctured in the middle, reticulate on the sides; metathorax retracted and rounded posteriorly, disc with fine longitudinal lines not reaching the apex, which is smooth and shining. Wings hyaline. Legs dull testaceous, hind spur serrate with numerous fine teeth. Abdomen beneath dull testaceous. Length 4—6 mm.

♂.—Resembles the female; apex of clypeus, labrum, mandibles, except tips and tarsi, whitish; antennæ beneath and tibiæ almost entirely testaceous; fourth ventral segment broadly emarginate. Length 5—6 mm.

*Hab.*—Illinois; nine male, nineteen female specimens. This species is very closely allied to *A. pura* Say. It differs in its smaller size, golden color, in the antennæ, tegulæ, nervures, legs, etc., being more extensively testaceous. The metathoracic striae do not reach the edge of the truncation, as is commonly the case in *A. pura*. It resembles *A. aurata*, as described by Smith, but the disc of the metathorax has no enclosed space “surrounded by a sharp curved ridge.”

**Augochlora labrosa** Say.

This species is common in Illinois. It has abundant characters distinguishing it from *A. pura* and *A. similis*, one of the most obvious being its mesothorax evenly punctured and not reticulated on the sides as in those species. The male is distinguished by the fourth ventral segment not being broadly emarginate as in *A. pura* and *A. similis*.

**Augochlora matilda** ♀.—Green, with bluish and purplish reflections; clypeus produced, sides of face with coarse reticulations, apex of mandibles rufous, flagellum dull testaceous at tip beneath; mesoscutum and scutellum covered with coarse reticulations; metathorax rounded posteriorly, the disc short, shorter than scutellum, hardly longer than post-scutellum, with coarse longitudinal ridges terminating at a waved salient ridge at the edge of the declivity; wings yellowish hyaline; nervures, stigma and tegulae exteriorly dull testaceous; femora green, tibiae and tarsi fuscous-ferruginous, hind spur serrate with numerous fine teeth; abdomen shining, minutely punctured, with thin pale yellowish pubescence. Length 7 mm.

*Hab.*—Florida; two specimens taken at Inverness, Citrus County.

**Augochlora austrina** ♀.—Green, with bluish reflections; clypeus produced, mandibles rufous at tip, flagellum towards tip testaceous; face above insertion of antennae evenly punctured, mesoscutum anteriorly shining and slightly rugose, elsewhere evenly punctured; metathorax rounded posteriorly, disc about as long as postscutellum, finely rugose with irregular longitudinal ridges; wings hyaline, slightly dusky towards tips, nervures, stigma and tegulae testaceous; femora and tibiae exteriorly greenish, tarsi dull ferruginous, hind spur serrate with numerous fine teeth; abdomen minutely punctured, clothed with thin pale pubescence. Length 6 mm.

*Hab.*—Florida; one specimen, taken in Citrus County.

All of the species of *Augochlora* mentioned above agree in having the hind spur serrate with numerous fine teeth and form a distinct section of the genus. Another section, to which belong *A. lucidula* Sm., *A. sumptuosa* Sm. and *A. humeralis* Pttn., is characterized by having this spur provided with four or five long teeth.

**Agapostemon nigricornis** F. (= *Halictus splendens* Lep. = *Agapostemon æruginosus* Sm.)

The male can be separated from other males of the genus known to me by its robust posterior femora, "femoribus posticis incrassatis," Fab., Ent. Syst. ii, 313. I have eight male and female specimens taken in Florida.

**Agapostemon radiatus** Say (*Augochlora radiata* Sm., B. M. Cat. Hym. i, 80 = *Agapostemon pulchra* Sm.).

It is evident that Smith has referred Say's species to *Augochlora* and redescribed it under *Agapostemon*. The male of this species is smaller than that of *A. bicolor*, has the hind femora a little more robust and the metanotum more rugose.

**Agapostemon texanus** Cr.

This species occurs in Illinois. The male may be distinguished from those of the preceding by its white pubescence, and by its metanotum with a distinct triangular enclosure.

**Agapostemon bicolor** ♀.—Head and thorax green, the abdomen black; clypeus produced, black at apex, mandibles at base pale yellow, at tips rufopiceous; antennæ black, flagellum testaceous beneath; face with confluent punctures, mesoscutum densely punctured, the punctures becoming confluent anteriorly, metanotum less rugose than in *A. radiatus*; wings yellow hyaline, nervures, stigma and tegulae testaceous, the latter with a pale yellow spot in front; anterior and middle femora black, anterior and middle knees yellow, elsewhere the legs a more or less dull ferruginous; abdomen closely and finely punctured, basal margins of all the segments with dense, appressed, pale pubescence, more or less interrupted in the middle. Length 10—12 mm.

♂.—The male resembles that of *A. radiatus*, but is distinguished by its larger size, slightly more slender femora, its metanotum less rugose. Length 10—12 mm.

*Hab.*—Illinois; a common species.

**Agapostemon tricolor** Lep.

The description gives the ornaments of the males of either of the above the species. An examination of the type would be necessary for its determination. The males of the different species are very difficult to determine, but they show a metathoracic sculpture like that of the females to which they belong. *A. nigricornis*, however, as observed above, can be distinguished by its thickened hind femora.

**Andrena serotina** ♀.—Black, clothed with thin pale ochraceous pubescence; clypeus finely roughened, hardly shining, with large, sparse punctures; basal process of labrum subtriangular, broadly truncate at tip; mandibles at apex rufous, flagellum beneath dull testaceous; mesonotum finely roughened, with sparse, shallow punctures; enclosure of metanotum large, rather coarsely reticulated. Wings fulvo-hyaline; nervures, stigma and spot on tegulae testaceous. Legs, especially the tarsi, fusco-ferruginous. Abdomen minutely roughened and finely punctured, apical margins of segments pale testaceous, 2-4 slightly depressed and bearing interrupted fasciae of whitish pubescence; anal fimbriae fulvous. Length 7—8 mm.

♂.—Head broader than thorax, clypeus shining, finely and sparsely punctured, thinly pubescent, apex strongly produced and widely emarginate at tip; mandibles long, decussate, rufous at tip; flagellum testaceous beneath, cheeks strongly produced behind the eyes and surrounded by a carinate border, vertex nearly carinate; tegulae more testaceous than in female. Legs dull ferruginous, tarsi testaceous. Abdomen fusco-ferruginous, shining, margins of segments pale testaceous, but hardly fasciate. Length 7 mm.

*Hab.*—Illinois; six females and three male specimens. The female resembles *A. flavo-clypeata* Sm.

**Andrena scutellaris** ♀.—Black, pubescence beneath pale ochraceous, above inclining to fulvous, especially on the scutellum and post-scutellum, where it is dense and bright; clypeus shining and impunctate medially, rather closely punctured and thinly pubescent laterally; basal process of labrum subtriangular, broadly rounded at tip; mandibles rufopiceous at apex; antennæ black; mesonotum minutely roughened, almost impunctate, clothed with thin, pale, fulvous

pubescence, the scutellum posteriorly and post-scutellum with rather long, bright fulvous pubescence; enclosure of metanotum reticulated at base. Wings fusco-hyaline; nervures, stigma and tegulae dull testaceous. Legs black, apical joints of tarsi ferruginous. Abdomen finely roughened and feebly punctured, apical margins of segments narrowly pale testaceous, with thin fasciae of pale pubescence, anal fimbria fuscous. Length 8 mm.

♂.—Resembles the female, the pubescence a little paler; the clypeus yellow, with a triangular black spot on each side; basal process of labrum subquadrate, shorter than broad. Length 5—7 mm.

*Hab.*—Florida; twenty-six female, eight male specimens. This species closely resembles *A. flavo-clypeata* Sm., but may be distinguished by its darker wings, fulvous pubescence, etc.

### The Phalangida Mecostethi of the United States.

BY NATHAN BANKS.

The Mecostethi (Laniatores) have two claws to each of the four posterior tarsi, or else a compound claw; the Plagiostethi (Palpatores) have one simple claw to the tarsus of each leg. Two families of the Mecostethi have been recorded from the United States in the following literature:

Say.—An Account of the Arachnids of the United States, Journ. Acad. Nat. Sci. 1821; Complete Writings, LeCoute.

Tellkampf.—Beschr. ein neu i. d. Mammuth-Höhle in Kentucky aufgefunden. Gattung. v. Gliederthieren, Arch. f. Naturgesch. 1844.

Cope.—On the Wyandotte Cave and its fauna, Am. Nat. 1872.

Simon.—Opiliones Mecostethi, Ann. Soc. Ent. Belg. 1879.

Hubbard.—Two days' collecting in the Mammoth Cave, etc., Am. Ent. 1880.

Packard.—New Cave Arachnida, Am. Nat. 1884.

Packarl.—The Cave Fauna of North America, etc., Nat. Acad. Sci. 1887 (?)

The two families may be separated as follows:

Hind pair of coxae free at apex, spiracles obscure.....	PHALANGODIDÆ.
Hind coxae wholly united to the venter, spiracles distinct.....	COSMETIDÆ.

Our species of Cosmetidæ apparently belong to one genus, which has some of the characters of *Cynorta*, and some of *Vonones*. As *Cynorta* is the older and best known, I adopt that name for them. The eye-tubercle is almost obliterated, with only a few small granules, the eyes widely separated, the legs short and tarsus I with five joints. The palpi have the second joint short, concave within; the third still shorter, widest at tip; the fourth longer than the others, with the sides flattened; the fifth short, with a long claw. The palpi are usually appressed to the face, so as to cover the mandibles. The three species known to me are separable as follows: